SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form: Article
Trade name: Adenine hemisulphate
EC-No.: 206-286-5
CAS-No.: 321-30-2
Product code: A0908
Formula: \((\text{C}_5\text{H}_5\text{N}_5\text{)}_2 \cdot \text{H}_2\text{SO}_4\)
Synonyms: 6-Aminopurine sulfate dihydrate / Diadenine sulphate
Product group: Raw material

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category: Professional use
Industrial/Professional use spec: For professional use only. Duchefa Biochemie B.V. products are intended only for "in vitro laboratory" research purposes.

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier
Duchefa Biochemie B.V.
A. Hofmanweg 71
2031 BH Haarlem - The Netherlands
T +31(0)23-5319093 - F +31(0)23-5318027
info@duchefa.nl

1.4. Emergency telephone number

Emergency number: Supplier contact information:
+31(0)23-5319093 (M-F 09:00-17:00)
+31(0)6-30109355 (outside office hours)

<table>
<thead>
<tr>
<th>Organisation/Company</th>
<th>Address</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Health Organization world directory of poison centres</td>
<td><a href="http://apps.who.int/poisoncentres/">http://apps.who.int/poisoncentres/</a></td>
<td>Consult website for a local poison centre</td>
</tr>
</tbody>
</table>

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Acute toxicity (oral), Category 4

Adverse physicochemical, human health and environmental effects

No additional information available
2.2. Label elements
Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) : GHS07

Signal word (CLP) : Warning
Hazardous ingredients : Adenine hemisulphate
Hazard statements (CLP) : H302 - Harmful if swallowed.
Precautionary statements (CLP) : P301+P312+P330 - IF SWALLOWED : Call a POISON CENTER or doctor if you feel unwell. Rinse mouth.

2.3. Other hazards
No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances
Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenine hemisulphate</td>
<td>(CAS-No.) 321-30-2</td>
<td>&gt;= 99</td>
<td>Acute Tox. 4 (Oral), H302</td>
</tr>
</tbody>
</table>

   (EC-No.) 206-286-5

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Get medical advice/attention if you feel unwell. Remove victim to fresh air.
First-aid measures after skin contact : Seek medical attention if ill effect or irritation develops. Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
First-aid measures after eye contact : Seek medical attention if ill effect or irritation develops. Rinse immediately with plenty of water.
First-aid measures after ingestion : Rinse mouth out with water. Get medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed
No additional information available

4.3. Indication of any immediate medical attention and special treatment needed
No additional information available
SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media: Dry powder. Alcohol resistant foam. Water spray.

5.2. Special hazards arising from the substance or mixture
Hazardous decomposition products in case of fire: Under fire conditions, hazardous fumes will be present. COx. NOx. SOx.

5.3. Advice for firefighters
Protection during firefighting: Wear proper protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel
Protective equipment: Spill should be handled by trained cleaning personnel properly equipped with respiratory and eye protection.
Measures in case of dust release: Use good housekeeping practices to avoid rendering dust airborne.

6.1.2. For emergency responders
No additional information available

6.2. Environmental precautions
Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Dispose in a safe manner in accordance with local/national regulations. Sweep up dry powder and dispose properly.

6.4. Reference to other sections
No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling: Ensure good ventilation of the work station.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Store in dry, cool, well-ventilated area. Store at room temperature.

7.3. Specific end use(s)
For professional use only. Duchefa Biochemie B.V. products are intended only for “in vitro laboratory” research purposes.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
Additional information: Provide local exhaust or general room ventilation

8.2. Exposure controls
Hand protection:

<table>
<thead>
<tr>
<th>Type</th>
<th>Material</th>
<th>Permeation</th>
<th>Thickness (mm)</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gloves</td>
<td>Nitrile rubber (NBR)</td>
<td>6 (&gt; 480 minutes)</td>
<td>0,11</td>
<td>EN 374</td>
</tr>
</tbody>
</table>
Eye protection:
Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
Wear appropriate mask, filter type P2 (EN 143)

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Crystalline powder.</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>368.3 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>White</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>≈ 284 - 286 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>No data available</td>
</tr>
<tr>
<td>Solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
No additional information available
10.3. Possibility of hazardous reactions
Stable.

10.4. Conditions to avoid
No additional information available

10.5. Incompatible materials
Strong oxidizers.

10.6. Hazardous decomposition products
When heated to decomposition, emits dangerous fumes.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Oral: Harmful if swallowed.

<table>
<thead>
<tr>
<th>Adenine hemisulphate (321-30-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral</td>
</tr>
<tr>
<td>750 mg/kg mouse</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Not classified
Respiratory or skin sensitisation: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified

Reproductive toxicity: Not classified
STOT-single exposure: Not classified
STOT-repeated exposure: Not classified

Aspiration hazard: Not classified
Other information: See actual entry in RTECS for complete information: AU7140000.

SECTION 12: Ecological information

12.1. Toxicity
No additional information available

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Results of PBT and vPvB assessment
No additional information available

12.6. Other adverse effects
Additional information: Avoid release to the environment. Prevent entry to sewers and public waters
SECTION 13: Disposal considerations

13.1. Waste treatment methods
Waste treatment methods : Avoid release to the environment. Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

In accordance with ADR / IATA / IMDG

<table>
<thead>
<tr>
<th>ADR</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1. UN number</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>14.2. UN proper shipping name</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>14.3. Transport hazard class(es)</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>14.4. Packing group</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>14.5. Environmental hazards</td>
<td>Dangerous for the environment: No</td>
<td>Dangerous for the environment: No</td>
</tr>
<tr>
<td></td>
<td>Marine pollutant: No</td>
<td>Dangerous for the environment: No</td>
</tr>
<tr>
<td></td>
<td>No supplementary information available</td>
<td></td>
</tr>
</tbody>
</table>

14.6. Special precautions for user

- Overland transport
  No data available

- Transport by sea
  No data available

- Air transport
  No data available

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations
Contains no substance on the REACH candidate list

15.1.2. National regulations
Ensure all national/local regulations are observed.

Germany

Netherlands
Adenine hemisulphate
Safety Data Sheet
according to Regulation (EU) 2015/830

22/09/2017 Duchefa Biochemie B.V.
EN (English) SDS Ref.: A0908

SAFETY DATA SHEET

According to Regulation (EU) 2015/830

SECTION 1: Identification

1.1. Product identification
Adenine hemisulphate

1.2. Supplier identification
Duchefa Biochemie B.V.

1.3. Registration number
A0908

1.4. Emergency number

1.5. Contact point

SECTION 2: Hazard(s) identification

2.1. Classification (CLP)

2.2. Hazard statements (CLP)

2.3. Precautionary statements (CLP)

2.4. Signal word (CLP)

SECTION 3: Hazards identification

3.1. SVN (Section 3.1) Not applicable

3.2. SVN (Section 3.2) Not applicable

SECTION 4: First aid measures

4.1. General measures in case of spillage

4.2. Specific measures in case of fire

4.3. Extinguishing media

4.4. Protection of fire fighters

SECTION 5: Fire and explosion hazard

5.1. Inflammability

5.2. Flammability

5.3. Explosiveness

SECTION 6: Reactivity hazards

6.1. Reactivity

6.2. Stability

6.3. Conditions for safe storage

SECTION 7: Handling and storage

7.1. Precautions for safe handling

7.2. Conditions for safe storage,包括 any incompatibilities

7.3. Disposal

7.4. Transport

SECTION 8: Exposition control/Personal protective equipment

8.1. Control parameters

8.2. Eye protection

8.3. Respiratory protection

8.4. Hand protection

8.5. Skin protection

8.6. Protective workwear

8.7. Clothing

SECTION 9: Physical and chemical properties

9.1. Chemical formula

9.2. Molecular weight

9.3. Appearance

9.4. Odor

9.5. Odor threshold

9.6. Melting point

9.7. Boiling point

9.8. Density

SECTION 10: Stability and reactivity

10.1. Stability

10.2. Reactivity

10.3. Hazardous reactions

10.4. Risk of polymerisation

SECTION 11: Toxicological information

11.1. Route of exposure

11.2. Symptoms of exposure

11.3. Acute effects

11.4. Chronic effects

11.5. Biological monitoring

11.6. Medical surveillance

11.7. Special remarks on hazards

SECTION 12: Ecological informations

12.1. Persistence and bioaccumulation

12.2. Ecotoxicological data

12.3. Biological effects

12.4. Other ecological information

SECTION 13: Disposal considerations

13.1. Waste treatment

13.2. Disposal to air

13.3. Disposal to soil

13.4. Disposal to water

SECTION 14: Transport information

14.1. UN number

14.2. principal hazard

14.3. secondary hazards

14.4. packing group

14.5. transport risk

14.6. Special requirements

SECTION 15: Regulatory information

15.1. EU classification and labeling

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Indication of changes:

1.4 Emergency number Modified

2.1 Classification (CLP) Added H302

2.2 Hazard statements (CLP) Added H302

2.2 Precautionary statements (CLP) Added P301+P312+P330

2.2 Signal word (CLP) Added Warning

8.2 Hand protection Modified Specified material, thickness, etcetera of gloves

Abbreviations and acronyms:

ATE Acute Toxicity Estimate
ADR European Agreement concerning the International Carriage of Dangerous Goods by Road
BCF Bioconcentration factor
CLP Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DPD Dangerous Preparations Directive 1999/45/EC
DSD Dangerous Substances Directive 67/548/EEC
IATA International Air Transport Association
IMDG International Maritime Dangerous Goods
LC50 Median lethal concentration
LD50 Median lethal dose
LOAEL Lowest Observed Adverse Effect Level
NOAEC No-Observed Adverse Effect Concentration
PBT Persistent Bioaccumulative Toxic
SDS Safety Data Sheet

Data sources

Full text of H- and EUH-statements:

Acute Tox. 4 (Oral) Acute toxicity (oral), Category 4
H302 Harmful if swallowed.

SDS Biochemicals version 2017

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.